



PREVENTION

MANAGEMENT

Hazardous Waste Determination: A Guide Through NR 605, Wis. Adm. Code

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In Wisconsin, hazardous waste regulations are found in the NR 600 series, Wis. Adm. Code. Hazardous waste is defined in ch. NR 605, Wis. Adm. Code, "Identification and Listing of Hazardous Waste." Generators are required to determine if any waste they generate is hazardous. Before determining if a waste is hazardous, one must first determine if the waste meets the criteria established for solid waste. For a material to be a hazardous waste, it must first be a solid waste. If your waste meets the definition of solid waste, it may also be a hazardous waste. Once a waste has been identified as a solid waste, the following questions can be addressed:

1. Is the solid waste a *listed* hazardous waste?
2. Is the solid waste derived from a *listed* hazardous waste?
3. Does the solid waste exhibit a hazardous waste characteristic?
4. Is the solid waste consist of a mixture containing a hazardous waste?
5. Is the solid waste excluded from hazardous waste regulation?

If you answered "yes" to any of the questions 1-4, and the solid waste is not excluded from hazardous waste regulations, it may be a hazardous waste. To increase your understanding of hazardous waste determination, the above questions will be addressed or outlined in more detail. But first, the definition of solid waste will be briefly discussed.

Definition of Solid Waste (s. 289.01(33) Stats.)

The definition of solid waste includes:

- ♦ any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility
- ♦ discarded or salvageable materials, including solid, liquid, semisolid, or contained gaseous materials resulting from industrial, commercial, mining and agricultural operation, and from community activities

The definition of solid waste does not include:

- ♦ solids or dissolved material in domestic sewage
- ♦ solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under ch. 283, Stats.
- ♦ source, special nuclear or by-product material s. 254.31, Stats.

In other words, if a material is no longer to be used for its originally intended purpose, and it must be discarded/treated to reclaim its original properties or be used for an alternative purpose, then that material is a solid waste.

Is the solid waste a *listed* hazardous waste?

If the waste is *listed* in s. NR 605.09, Wis. Adm. Code, it is considered a hazardous waste. These *listed* hazardous wastes are categorized based upon their source. Each hazardous waste is assigned a four character hazardous waste code with the first character signifying the waste type. The four hazardous waste code prefixes are listed below.

Generators of acute hazardous waste are subject to the more stringent generation rate and accumulation amount limits in s. NR 610.09, Wis. Adm. Code. Acute hazardous wastes can be extremely dangerous to human and environmental health after short term exposure to very small doses.



'F' wastes - hazardous wastes from non-specific sources (e.g., certain spent solvents from any activity or source) and listed in Table II of s. NR 605.09(2)(a), Wis. Adm. Code. 'F' wastes that are acute hazardous wastes are noted with a Hazard Code 'H'.

NOTE: The State F027 listed hazardous waste is broader in scope than the federal list. In addition, there is a unique State F500 listed hazardous waste.



'K' wastes - hazardous wastes from specific sources (i.e., certain wastes from a specific activity or source) and listed in Table III of s. NR 605.09(2)(b), Wis. Adm. Code.



'P' wastes - acute hazardous wastes including discarded on/off specification species, commercial chemical products or manufacturing chemical intermediates, and container and spill residues thereof (e.g., certain discarded unused chemical products), listed in Table IV of s. NR 605.09(3)(b), Wis. Adm. Code. All 'P' wastes are acute hazardous waste (Hazard Code 'H').



'U' wastes - toxic hazardous wastes including discarded on/off specification species, commercial chemical products or manufacturing chemical intermediates, and container and spill residues thereof (e.g., certain discarded unused chemical products), listed in Table V of s. NR 605.09(3)(c), Wis. Adm. Code. All 'U' wastes are toxic hazardous wastes (Hazard Code 'T'). 'P' or 'U' listed materials are hazardous wastes if and when they are discarded or intended to be discarded, when they are mixed with used oil or other solid wastes, or contained in products, and applied to the land in lieu of their original intended use, or when, in lieu of their original intended use, they are produced for use as, or as a component of, a fuel, distributed for use as a fuel, or burned as a fuel.

NOTE: The term 'commercial chemical product or manufacturing chemical intermediate' is defined in s. NR 600.03(36), Wis. Adm. Code, as a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient.

The definition also states that the term does not mean a waste, such as a manufacturing process waste, which contains any of the substances in the 'P' or 'U' lists. When a manufacturing process waste is considered a hazardous waste because it contains a substance in the 'P' or 'U' lists, the waste must be listed as a 'F' or 'K' waste.



Is the solid waste derived from a *listed* hazardous waste?

According to s. NR 605.04(1)(b)4., Wis. Adm. Code, waste is considered hazardous if it is derived/generated from the treatment, storage, or disposal of a listed hazardous waste. However, the following waste is not considered hazardous waste as defined in s. NR 605.04(1)(b)5., Wis. Adm. Code:

- ◆ sludge that is derived from lime stabilization treatment of spent pickle liquor identified by the SIC codes 331 and 332 (K062) and does not display any of the hazardous waste characteristics.

Does the solid waste exhibit a hazardous waste characteristic?

Four characteristics are assessed in defining a hazardous waste: ignitability, corrosivity, reactivity, and toxicity (s.NR 605.08, Wis. Adm. Code). A waste displaying any one of these four characteristics is deemed hazardous.



Ignitability relates to the waste's ability to burn or stimulate the burning of something else. Liquid wastes are categorized ignitable (D001 classified waste) if they have a flash point below 140°F. Some non-liquid, compressed gas and oxidizing wastes can also have this characteristic.



Corrosivity relates to the waste's ability to destroy/deteriorate materials, chemically burn skin, enhance the movement of toxic chemicals in the environment, react dangerously with other wastes and harm fish and other aquatic life. Aqueous wastes are categorized corrosive (D002 classified waste) if the pH is ≤ 2 or ≥ 12.5 . Liquid wastes are considered corrosive if they corrode steel by more than one-quarter of an inch per year.



Reactivity relates to the waste's extreme instability and tendency to react violently or explode. A waste is categorized reactive (D003 classified waste) if it is unstable, by itself or in the presence of water; can form explosive mixtures with water; produces dangerous quantities of toxic gases, vapors or fumes when mixed with water or when exposed to mild acids or bases; can detonate, or react or decompose explosively; or is a forbidden, Class A or Class B explosive.



Toxicity relates to the waste's ability to contaminate groundwater. Wastes are categorized toxic (D004-D043 classified waste) if they release or leach any of 39 specified heavy metals, pesticides and other organic chemicals above their regulatory level concentrations. The Toxicity Characteristic Leaching Procedure (TCLP) is used to produce a waste leachate and other analytical methods are used to determine the concentrations of these chemicals in the leachate.

Does the solid waste consist of a mixture containing a hazardous waste?

Whenever a non-hazardous solid waste is mixed with one or more *listed* hazardous wastes, the mixture is considered a hazardous waste. According to s. NR 605.04(1)(b)2. and 6., Wis. Adm. Code, a mixture is not considered hazardous if it consists of wastewater and includes one or more of the following waste streams.

- ◆ the maximum total weekly usage of one or more of the following 'F-waste' solvents, other than the amounts not discharged to wastewater, divided by the average weekly flow of wastewater into the facility's wastewater treatment or pretreatment system does not exceed one part per million (1 ppm);
 - carbon tetrachloride
 - trichloroethylene
 - tetrachloroethylene



- ◆ the maximum total weekly usage of one or more of the following 'F-wastes' solvents, other than amounts not discharged to wastewater, divided by the average weekly flow of wastewater into the facility's wastewater treatment or pretreatment system does not exceed 25 parts per million (25 ppm);

methylene chloride	1,1,1-trichloroethane
chlorobenzene	o-dichlorobenzene
cresols	cresylic acid
nitrobenzene	toluene
methyl ethyl ketone	carbon disulfide
isobutanol	pyridine
chlorofluorocarbons	

- ◆ heat exchanger bundle cleaning sludge from the petroleum refining industry (Haz. Waste Number K050);
- ◆ a P or U listed discarded commercial chemical product(s) or chemical intermediate(s) resulting from minimal losses of these materials from manufacturing operations arising from the use or production of the raw material;
- ◆ wastewater resulting from laboratory operations containing listed hazardous wastes with the hazard code (T) if the annualized average flow of laboratory wastewater does not exceed one percent of total wastewater flow into the facility's wastewater treatment or pretreatment system, or if the wastes combined annualized average concentration entering the facility's wastewater treatment or pretreatment facility does not exceed one part per million (1 ppm);
- ◆ a mixture of hazardous waste, deemed hazardous solely because it exhibits a hazardous waste characteristic, and solid waste where the resultant mixture no longer exhibits the characteristics of a hazardous waste.

NOTE: Mixing solid waste and hazardous waste may require a hazardous waste treatment license.

Is the solid waste excluded from hazardous waste regulation?

A. The following wastes are excluded from hazardous waste regulation under s. NR 605.05(1), Wis. Adm. Code:

- ◆ household waste, except if the hazardous waste in this stream is separated for later management by someone other than a member of the household

NOTE: Such hazardous waste separated from household waste is not subject to hazardous waste regulation until after it is in the possession of someone other than a member of the household.

- ◆ waste managed by certain municipal solid waste resource recovery facilities
- ◆ cement kiln dust waste
- ◆ agricultural crop and animal wastes used as fertilizer
- ◆ certain discarded arsenic-treated wood or wood products generated by end users



- ◆ polychlorinated biphenyls (PCBs)

NOTE: PCBs are regulated under ch. 157, Wis. Adm. Code.

- ◆ wastes generated primarily from the combustion of fossil fuels
- ◆ wastes generated from the development or production of crude oil, natural gas or geothermal energy exploration
- ◆ waste containing trivalent chromium wastes meeting specific criteria as approved by U.S.EPA and the Department
- ◆ certain wastes generated from leather tanning and finishing, leather product manufacturing and titanium dioxide pigment production
- ◆ mining overburden which is returned to the mining site
- ◆ solid wastes generated from ore and mineral extraction, beneficiation and processing
- ◆ wastes generated from the combustion of municipal solid waste at a Departmentally approved facility
- ◆ by-products which exhibit a hazardous waste characteristic, but are not listed hazardous wastes, that are reclaimed and comply with s. NR 605.05(1m) and (1r), Wis. Adm. Code
- ◆ domestic sewage
- ◆ 'mixtures' of domestic sewage and other wastes that pass through a sewer system to a publicly owned treatment works (POTW) for treatment
- ◆ petroleum contaminated media and debris that have the toxicity characteristic for any of the listed hazardous waste codes D018 to D043 and that are subject to the corrective action regulations under 40 CFR 280
- ◆ used oil, exhibiting one or more hazardous waste characteristics, that is recycled in some manner other than being burned for energy recovery
- ◆ used chlorofluorocarbon (CFC) refrigerants that are reclaimed for further use
- ◆ dielectric fluid containing PCBs, and electrical equipment containing such fluid which is authorized for use and regulated under 40 CFR 761, and considered hazardous solely because it fails the toxicity characteristic, hazardous codes D018 to D043 only, are exempt from hazardous waste regulation under s. NR 605.13, Wis. Adm. Code. These wastes are regulated under toxic substances control act.



B. The following wastes are partially excluded from hazardous waste regulation (chs. NR 610 to 685, Wis. Adm. Code) under s. NR 605.05, Wis. Adm. Code:

- ◆ scrap metal that is legitimately recovered or reclaimed and the generator complies with s. NR 605.05(1h)(a), 605.05(1m) and (1r), Wis. Adm. Code
- ◆ industrial ethyl alcohol that is legitimately recovered or reclaimed and the generator complies with s. NR 605.05(1h)(b), 605.05(1m) and (1r), Wis. Adm. Code

C. The following wastes are excluded from hazardous waste regulation under various sections of the NR 600 series:

- ◆ metallic mining wastes, as defined in s. 293.01, Stats., resulting from a mining operation as described in s. NR 605.02, Wis. Adm. Code
- ◆ hazardous waste generated in a product or raw material storage, transportation or manufacturing unit, other than a surface impoundment, is not subject to regulation under chs. NR 600 Series Wis. Adm. Code until it exits the unit in which it was generated, unless the waste remains in the unit for more than 90 days after the unit ceases to be operated (s. NR 605.05(2), Wis. Adm. Code)
- ◆ waste or environmental media samples collected only for testing to determine their characteristics or composition so long as the samples and sample shipments are managed according to s. NR 605.05(3), Wis. Adm. Code
- ◆ waste or environmental media samples undergoing treatability studies at laboratories and testing facilities that comply with s. NR 605.05(4)&(5), Wis. Adm. Code
- ◆ residues of hazardous waste in empty containers meeting the applicable criteria in s. NR 605.06, Wis. Adm. Code
- ◆ pesticide containers generated by farmers that are cleaned and managed according to s. NR 610.04(2), Wis. Adm. Code

NOTE: Pesticide container rinsate generated by farmers is also excluded from hazardous waste regulations if properly disposed of on the farm where it is generated in accordance s. NR 610.04(3) and 615.04(2), Wis. Adm. Code

- ◆ waste lead-acid batteries destined for off-site recycling that are managed according to the applicable requirements of s. NR 610.04(1), 615.04(3) or 625.12, Wis. Adm. Code

Transportation

Any hazardous waste defined by Wisconsin Department of Transportation (DOT) regulations to be a "hazardous material" must be transported in compliance with all Wisconsin DOT and USDOT requirements for hazardous material. For more information contact (608) 266-0264.



Summary



Upon determining that a waste is, by definition, a solid waste, one should consider the following questions: Is the waste a listed hazardous waste? Does the waste display a hazardous waste characteristic? Is the waste mixed with or derived from a hazardous waste? Is the waste excluded from hazardous waste regulations? After answering these questions, one may conclude if their waste is indeed considered hazardous. Keep in mind analytical testing should be conducted by a laboratory certified for the proper test method under ch. NR 149, Wis. Adm. Code. A list of certified labs can be obtained from the DNR's Laboratory Services Section by calling 608/267-7633.

Remember, the **generator** is responsible for determining if its waste is classified a hazardous waste.



Questions?



Call your DNR Regional waste management program (see attached map) if you have additional questions or consult the NR 600 series, Wisconsin Administrative Code. You may also want to check on DNR's web site at <http://www.dnr.state.wi.us> or contact your regional waste management program or DNR's Bureau of Cooperative Environmental Assistance at 608/267-9700 for a list of other publications that might be of interest.

Copies of Wisconsin statutes and administrative rules can be purchased from Wisconsin Department of Administration, Document Sales and Distribution, P.O. Box 7840, Madison, WI 53707-7840 or call 608/266-3358. Wisconsin State statutes and some administrative rules are also on the Revisor of Statutes Bureau's world wide web site: <http://www.legis.state.wi.us/rsb/stats.html>.

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Also, this fact sheet is not intended as a substitute for the statutes and rules that apply. Rather, it is a brief summary of the topic. Please consult Wisconsin's statutes and administrative rules for detailed information.

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